A MODEL OF ^{137}Cs ROOT UPTAKE AT THE INITIAL STAGE OF ONTOGENESIS OF SOME CULTIVATED PLANTS

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On the basis of the data, obtained in the laboratory experiments, a phenomenological two-parameter model was developed for ^{137}Cs root uptake at the initial stage of ontogenesis of some cultivated plants - wheat, rye, maize, pea, bean, and soybean. Within the framework of the common approach the model describes the radionuclide accumulation by the plants with different types of the root system grown on soil with significantly different character of radionuclide contamination vertical profiles of the soil. The model parameters have adequate interpretation. The parameter values, defined as a result of the experimental data fitting, allow predicting values of the uptake coefficients for the investigated cultivated plants for an arbitrary vertical profile of radioactive contamination. Besides, the model provides the information about peculiarities of the mineral substance uptake by plants at the initial stage of their ontogenesis.